

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): KINOSHITA, et al.

Filed: March 4, 2001

For: EXHAUST GAS PROCESSING SYSTEM

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents

Washington, D.C. 20231

March 4, 2002

Sir:

Please amend the above-identified application, prior to calculating the filing fee and prior to examination thereof, as follows:

IN THE CLAIMS

Please amend the claims presently in the application as follows:

4. (Amended) An exhaust gas processing apparatus using the discharge generation apparatus defined in claim 1, characterized in that in a processing of a diesel exhaust gas including a particle substance, in a next process by combining a catalyst and in response to conditions of an exhaust gas, NO and NO<sub>2</sub> are removed and said amount and a component of a generation of NO<sub>2</sub> necessary for processing said particle

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substance are controlled;

thereby using said catalyst said particle substance is removed in a low temperature of about 300 C.

7. (Amended) An exhaust gas processing apparatus, characterized in that

NOx decomposition and NOx generation are carried out at the same time using said insulation substance such as said ceramic of said insulation core wire defined in claim 1, and a particle substance oxidation catalyst, and a reduction catalyst such as metal tin and indium which is burdened to alumina and gallium oxide.

8. (Amended) An exhaust gas processing apparatus, characterized in that

by combining NOx processing apparatus using the barrier discharge defined in claim 1, not using completely the noble metal, the processing is carried out completely; and

in response to the component of the exhaust gas, a following processing is carried out effectively.

14. (Amended) NOx decomposition apparatus according to claim 1,  
characterized in that

when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy  
according to an electric application voltage, NOx concentration and NO<sub>2</sub>  
concentration of before and after a processing are detected; and

a change condition of a normal, an increase and decrease state is  
grasped;

thereby a discharge energy point is determined.

Please add the following new claims to the application:

--21. An exhaust gas processing apparatus using the discharge generation  
apparatus defined in claim 3, characterized in that

in a processing of a diesel exhaust gas including a particle  
substance, in a next process by combining a catalyst and in response to  
conditions of an exhaust gas, NO and NO<sub>2</sub> are removed and said amount and a  
component of a generation of NO<sub>2</sub> necessary for processing said particle  
substance are controlled;

thereby using said catalyst said particle substance is removed in a  
low temperature of about 300 C.

22. An exhaust gas processing apparatus according to claim 21, characterized in that

to said catalyst no use of a noble metal such as platinum and paradigm but using oxides of vanadium, molybdenum alumina and zeolite; and thereby a necessary function is attained.

23. An exhaust gas processing apparatus, characterized in that by combining NOx processing apparatus using the barrier discharge defined in claim 6, not using completely the noble metal, the processing is carried out completely; and

in response to the component of the exhaust gas, a following processing is carried out effectively.

24. NOx decomposition apparatus according to claim 5, characterized in that

when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy according to an electric application voltage, NOx concentration and NO<sub>2</sub> concentration of before and after a processing are detected; and

a change condition of a normal, an increase and decrease state is grasped;

thereby a discharge energy point is determined.

25. NOx decomposition apparatus according to claim 9, characterized in that

when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy according to an electric application voltage, NOx concentration and NO<sub>2</sub> concentration of before and after a processing are detected; and

a change condition of a normal, an increase and decrease state is grasped;

thereby a discharge energy point is determined.

26. NOx decomposition apparatus according to claim 10, characterized in that

when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy according to an electric application voltage, NOx concentration and NO<sub>2</sub> concentration of before and after a processing are detected; and

a change condition of a normal, an increase and decrease state is grasped;

thereby a discharge energy point is determined.

27. NOx decomposition apparatus according to claim 12, characterized in that

when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy according to an electric application voltage, NOx concentration and NO<sub>2</sub> concentration of before and after a processing are detected; and a change condition of a normal, an increase and decrease state is grasped; thereby a discharge energy point is determined.

28. NOx decomposition apparatus according to claim 13, characterized in that when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy according to an electric application voltage, NOx concentration and NO<sub>2</sub> concentration of before and after a processing are detected; and a change condition of a normal, an increase and decrease state is grasped; thereby a discharge energy point is determined.--

REMARKS

Applicants have amended the original claims of the above-identified application to delete multiple dependency thereof, prior to calculation of the filing fee. In light of deletion of multiple dependency, Applicants have added new claims 21-28 to the application.

Entry of the present amendments; and, subsequent thereto, calculation of the filing fee and thereafter examination of the above-identified application in due course, are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current Preliminary Amendment. This marked-up version is on the attached pages, the first page of which is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 840.41268X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

  
William I. Solomon  
Registration No. 28,565

WIS/slk

VERSION WITH MARKINGS TO SHOW CHANGES MADE  
IN THE CLAIMS

Please amend the claims presently in the application as follows:

4. (Amended) An exhaust gas processing apparatus using the discharge generation apparatus defined in [claims 1-3] claim 1, characterized in that

in a processing of a diesel exhaust gas including a particle substance, in a next process by combining a catalyst and in response to conditions of an exhaust gas, NO and NO<sub>2</sub> are removed and said amount and a component of a generation of NO<sub>2</sub> necessary for processing said particle substance are controlled;

thereby using said catalyst said particle substance is removed in a low temperature of about 300 C.

7. (Amended) An exhaust gas processing apparatus, characterized in that

NOx decomposition and NOx generation are carried out at the same time using said insulation substance such as said ceramic of said insulation core wire defined in claim 1, and a particle substance oxidation catalyst [such as vanadium and molybdenum oxide to said ceramic filter defined in claim 6], and

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a reduction catalyst such as metal tin and indium which is burdened to alumina and gallium oxide.

8. (Amended) An exhaust gas processing apparatus, characterized in that

by combining NOx processing apparatus using the barrier discharge defined in [claims 1-3 and claim 6] claim 1, not using completely the noble metal, the processing is carried out completely; and

in response to the component of the exhaust gas, a following processing is carried out effectively.

14. (Amended) NOx decomposition apparatus according to [claims 1-5, Claims 9-10 and claims 12-13] claim 1, characterized in that

when an amount of NO<sub>2</sub> and NOx is controlled by discharge energy according to an electric application voltage, NOx concentration and NO<sub>2</sub> concentration of before and after a processing are detected; and

a change condition of a normal, an increase and decrease state is grasped;

thereby a discharge energy point is determined.